

## MEMORANDUM

**TO:** Tommy Strowd, Director, Operations, Maintenance & Construction Division  
Terrie Bates, Director, Water Resources Division

**FROM:** Susan Sylvester, Chief, Water Control Operations Bureau  
Linda Lindstrom, Chief, Applied Science Bureau  
Dean Powell, Chief, Water Supply Bureau

**DATE:** May 9, 2012

**SUBJECT:** Operational Position Statement for the Week of May 8 - May 14, 2012

The U.S. Army Corps of Engineers (USACE) is responsible for managing Lake Okeechobee water levels and makes operational decisions about whether to retain water or release water based on their regulation schedule release guidance. The USACE makes this decision taking into account the best available science and data provided by its staff and a variety of partners, which includes the South Florida Water Management District (SFWMD).

The SFWMD team has discussed the system wide environmental conditions, the water supply conditions, and has evaluated the overall status of the water management system. Detailed reports are available at the SFWMD's [Operational Planning](#) internet page.

### **Recommendation to the USACE**

Lake Okeechobee remains in the Beneficial Use sub-band and SFWMD staff continue to follow the Lake Okeechobee Adaptive Protocols (AP). The Adaptive Protocols were developed to provide guidance for both baseflow discharges and environmental water supply releases. The water supply balance achieved by following the protocol was evaluated by the Water Resources Advisory Commission and the SFWMD Governing Board, leading to board acceptance in September, 2010.

The SFWMD is making a release recommendation to the USACE consistent with the Lake Okeechobee Adaptive Protocol release guidance. This week the guidance suggests no S-77 release to the Caloosahatchee Estuary. The SFWMD also recommends that the USACE continue their standard operation to allow runoff from the C-44 basin (S-308 to S-80) to backflow to Lake Okeechobee via S-308 rather than discharge to tide via S-80.

Tributary hydrologic conditions (THC) remain in the dry classification (LORS-2008 classifications). The THCs are based on the weekly Lake Okeechobee net inflow computation and the Palmer Index. The THC is estimated using the methodology described in Appendix K of the USACE's Water Control Plan for Lake Okeechobee and the EAA. On Monday of each week the LORS-2008 release guidance parameters, including the THC, are calculated by the SFWMD using the most-recent data. The 14-day average Lake Okeechobee Net Inflow was -1995 cfs (dry) through May 7<sup>th</sup> and the Palmer Index was -4.01 (dry). The May 7<sup>th</sup> Lake stage was 11.57 feet, NGVD, which was about one foot below the bottom of the Baseflow Sub-band and about 0.7 feet above the Water Shortage Management Band.

When the lake stage is within the Beneficial Use subband, the AP guidance can suggest up to 300 cfs environmental water supply be released at S-79, supplemented as needed from Lake Okeechobee. However, because the Lake Okeechobee Tributary Hydrologic Condition indicator remains in the dry classification, the release guidance indicates "No S-77 release to the Caloosahatchee Estuary unless the Governing Board recommends otherwise".

### Weather and Climate

Rainfall during the past week totaled 0.37 inches district wide (through 7 am May 7<sup>th</sup>); however most of the rain has fallen south of Lake Okeechobee. For the past 30 days district average rainfall has totaled

about 3.55 inches (127% of average). According to RAINДАР 0.32 inches of rain fell directly over the Lake during the past 7-days. The SFWMD precipitation outlook for the next ten days (May 7 - 17) is near average with low confidence. For the first half of the upcoming wet season, the CPC outlook shows equal chances for below-normal, normal, and above-normal rainfall.

#### Lake Okeechobee Stage Regulation Schedule and Operation Summary

The May 7, 2012 Lake Okeechobee stage (reported by the USACE on May 8) was 11.57 feet NGVD, 0.11 feet lower compared with 7-days ago. The Lake is 0.51 feet lower than it was a month ago and is 0.81 feet higher than it was a year ago. The Lake remains in the Beneficial Use Sub-band. The current stage is 1.86 feet lower than the historical average for this date.

The LORS-2008 release guidance suggests no releases to the WCAs due to the dry tributary hydrologic conditions. LORS-2008 release guidance gives no guidance regarding releases at S-79 and at S-80. The SFWMD's Adaptive Protocol provides the necessary guidance for the appropriate release amount.

The following describes the release guidance per the Final Adaptive Protocols for Lake Okeechobee Operations (September 16, 2010). Each Tuesday the Coastal Ecosystem Section reviews the salinity conditions in the Caloosahatchee estuary and forecasts the predicted salinity for 14 days into the future at Val I75. The criterion for when the estuary needs water depends on the two week predicted salinity at Val I75 being at least 5 psu. According to the salinity criterion, the estuary needs freshwater inflow at S-79, supplemented from Lake Okeechobee as necessary.

The lower branch of the Adaptive Protocol release guidance flowchart applies since the stage is within the Beneficial Use Subband of the regulation schedule. Currently there is less than a 50% chance that the Lake stage will fall below elevation 11.0 ft, NGVD, before the end of the dry season, and the Tributary Hydrologic Condition is in the Dry classification. Correspondingly, the release guidance suggests "No S-77 release to the Caloosahatchee Estuary unless the Governing Board recommends otherwise".

For 14.5 weeks from December 16, 2011 through March 27, 2012, freshwater releases to the Caloosahatchee Estuary averaging 450 cfs (or more) helped to limit high salinities at Val-I75. The estuary needed freshwater inflows during this period per the criteria in the Lake Okeechobee Adaptive Protocol release guidance. On March 26, 2012, the Lake Okeechobee stage receded below the Baseflow subband and into the Beneficial Use subband. The AP guidance can suggest up to 300 cfs environmental water supply be released at S-79, supplemented as needed from Lake Okeechobee. However, because the Lake Okeechobee Tributary Hydrologic Condition indicator remains in the dry classification, the release guidance indicates "No S-77 release to the Caloosahatchee Estuary unless the Governing Board recommends otherwise".

The SFWMD understands that the LORS-2008 Water Control Plan describes circumstances where use of "Additional Operational Flexibility" may be considered. This provision was anticipated to be used infrequently and when the lake is above the Water Shortage Management Band. The Water Control Plan describes circumstances where a low volume pulse release may be implemented to benefit water quality within the lake and/or downstream. This recognizes that short-term high rates of release from Lake Okeechobee may be effective at breaking up algal blooms and that the District may request the Corps to initiate releases for this purpose.

At the April 12, 2012 SFWMD Governing Board meeting, direction was given to staff to continue to follow the Lake Okeechobee Adaptive Protocol release guidance and recommended that the USACE make no S-77 release to the Caloosahatchee Estuary for purposes of improving salinity conditions. At the same time, the SFWMD Governing Board also directed staff to continue conducting special water quality sampling between S-78 and S-79 and, if conditions warrant, request that the USACE initiate a short duration pulse release (up to a 3-day, 2,000 cfs pulse) to manage algal bloom conditions in the Caloosahatchee River utilizing the provisions of the Water Control Plan.

In follow-up to the Governing Board direction, staff completed water quality sampling along more than 40 miles of the Caloosahatchee River in an effort to ensure that water management decisions were based on sound scientific data. The sampling for microcystin revealed no toxins and no visible algae blooms. Chlorophyll-a levels were higher near S-78 than downstream at S-79, raising concerns that a release could push the elevated blue-green algae levels closer to S-79.

With a weekend forecast for significant rainfall in the lower west coast, and in continued consultation with the USACE, the decision was made to time operations to capitalize on the expected rain event, thereby maximizing the opportunity to push water through more of the system.

As requested by the SFWMD, the USACE initiated S-79 releases on Monday, April 23<sup>rd</sup> to reduce the likelihood of a possible algal bloom upstream of S-79. The requested release was unrelated to the SFWMD's Lake Okeechobee Adaptive Protocols, but was consistent with the SFWMD Governing Board's April 12<sup>th</sup> direction for up to a 3-day, 2000 cfs discharge. The SFWMD recommended that at the end of this release, the USACE operate the S-79 gates to transition out of the release on the fourth day, Friday, April 25<sup>th</sup>. The USACE reported that S-79 was closed at 5:00 pm, Friday, April 25<sup>th</sup>.

SFWMD staff continue to monitor for potential blue-green algae conditions in the C-43 and will make recommendations for releases consistent with Governing Board direction if conditions warrant.